FIG. 1

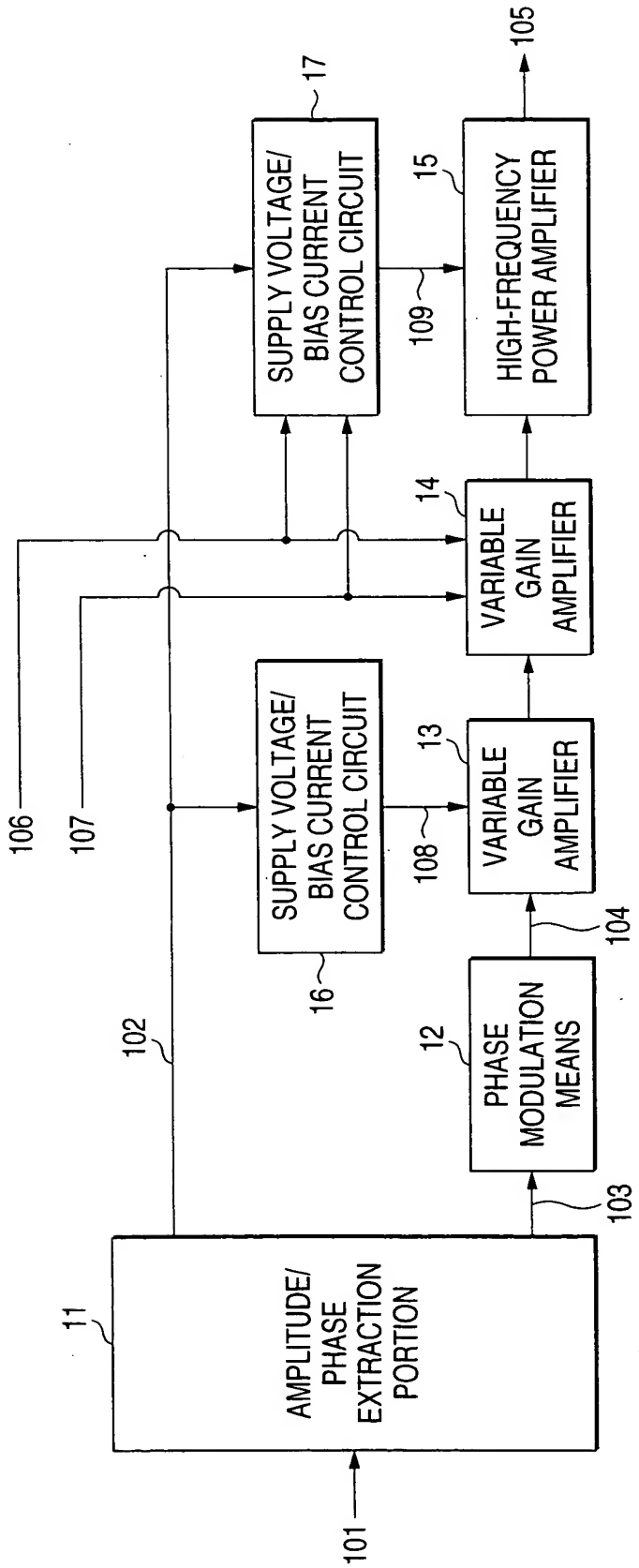

101
AMPLITUDE/ PHASE EXTRACTION PORTION
11
102
103
PHASE MODULATION MEANS
12
104
VARIABLE GAIN AMPLIFIER
13
108
SUPPLY VOLTAGE/ BIAS CURRENT CONTROL CIRCUIT
16
106
107
VARIABLE GAIN AMPLIFIER
14
SUPPLY VOLTAGE/ BIAS CURRENT CONTROL CIRCUIT
17
109
HIGH-FREQUENCY POWER AMPLIFIER
15
105

FIG. 2

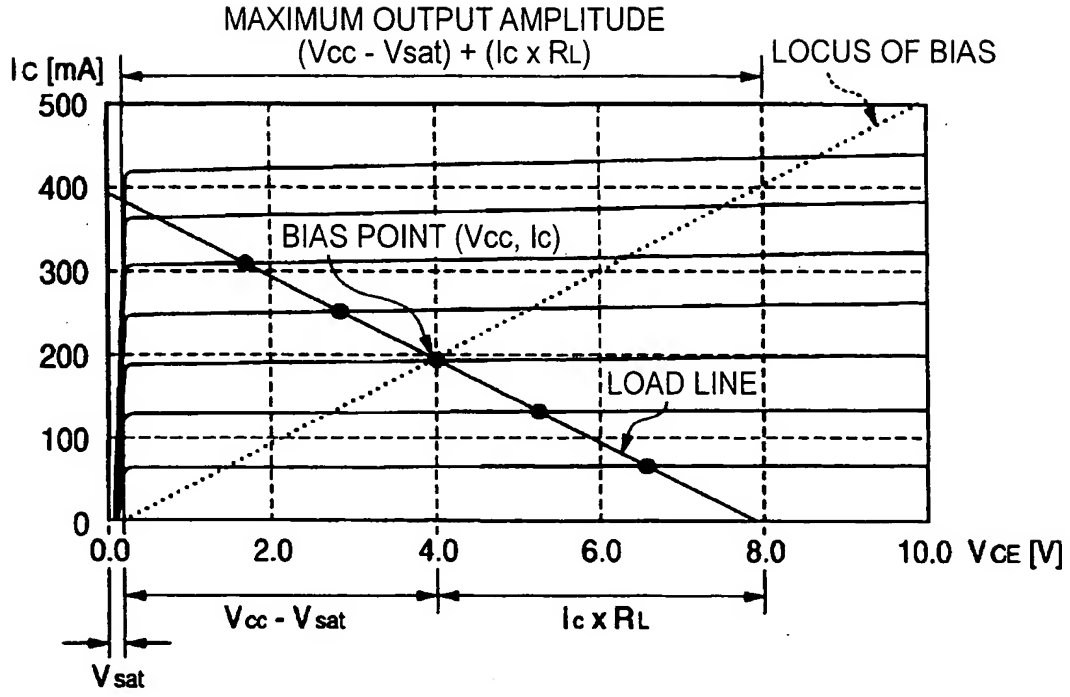

MAXIMUM OUTPUT AMPLITUDE
(Vcc - Vsat) + (Ic x RL)
LOCUS OF BIAS
Ic [mA]
500
400
300
200
100
0
BIAS POINT (Vcc, Ic)
LOAD LINE
0.0
2.0
4.0
6.0
8.0
10.0 VCE [V]
Vcc - Vsat
Ic x RL
Vsat

FIG. 3

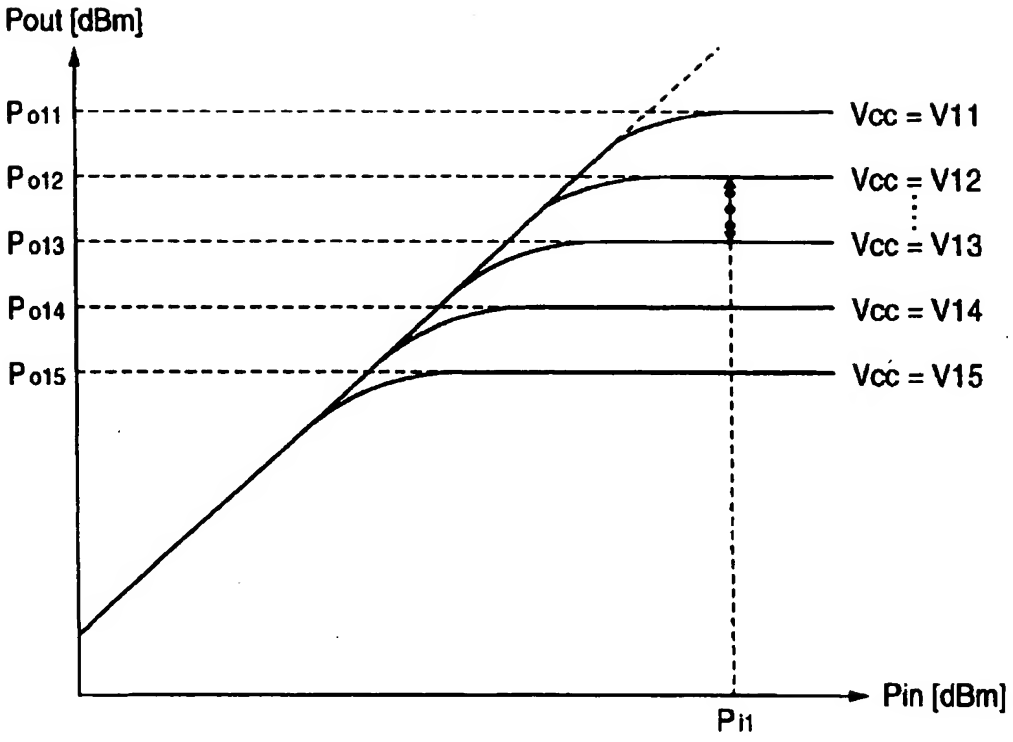

Pout [dBm]
Po11
Po12
Po13
Po14
Po15
Vcc = V11
Vcc = V12
Vcc = V13
Vcc = V14
Vcc = V15
Pin [dBm]
Pi1

FIG. 4

TIME	LINER OPERATING MODE			SATURATION OPERATING MODE		
	GAIN OF VARIABLE GAIN AMPLIFIER 14	VOLTAGE OF SUPPLY VOLTAGE/BIAS CURRENT CONTROL CIRCUIT 17	CURRENT OF SUPPLY VOLTAGE/BIAS CURRENT CONTROL CIRCUIT 17	GAIN OF VARIABLE GAIN AMPLIFIER 14	VOLTAGE OF SUPPLY VOLTAGE/BIAS CURRENT CONTROL CIRCUIT 17	CURRENT OF SUPPLY VOLTAGE/BIAS CURRENT CONTROL CIRCUIT 17
t(1, 1)	g_1	V_1	I_1	$g_1+\alpha$	V(1, 1)	I(1, 1)
t(1, 2)	g_1	V_1	I_1	$g_1+\alpha$	V(1, 2)	I(1, 2)
t(1, 3)	g_1	V_1	I_1	$g_1+\alpha$	V(1, 3)	I(1, 3)
t(1, 4)	g_1	V_1	I_1	$g_1+\alpha$	V(1, 4)	I(1, 4)
t(1, 5)	g_1	V_1	I_1	$g_1+\alpha$	V(1, 5)	I(1, 5)
t(1, 6)	g_1	V_1	I_1	$g_1+\alpha$	V(1, 6)	I(1, 6)
⋮	⋮	⋮	⋮	⋮	⋮	⋮
t(n, 1)	g_n	V_n	I_n	$g_n+\alpha$	V(n, 1)	I(n, 1)
t(n, 2)	g_n	V_n	I_n	$g_n+\alpha$	V(n, 2)	I(n, 2)
t(n, 3)	g_n	V_n	I_n	$g_n+\alpha$	V(n, 3)	I(n, 3)
t(n, 4)	g_n	V_n	I_n	$g_n+\alpha$	V(n, 4)	I(n, 4)
t(n, 5)	g_n	V_n	I_n	$g_n+\alpha$	V(n, 5)	I(n, 5)
t(n, 6)	g_n	V_n	I_n	$g_n+\alpha$	V(n, 6)	I(n, 6)
⋮	⋮	⋮	⋮	⋮	⋮	⋮

FIG. 5

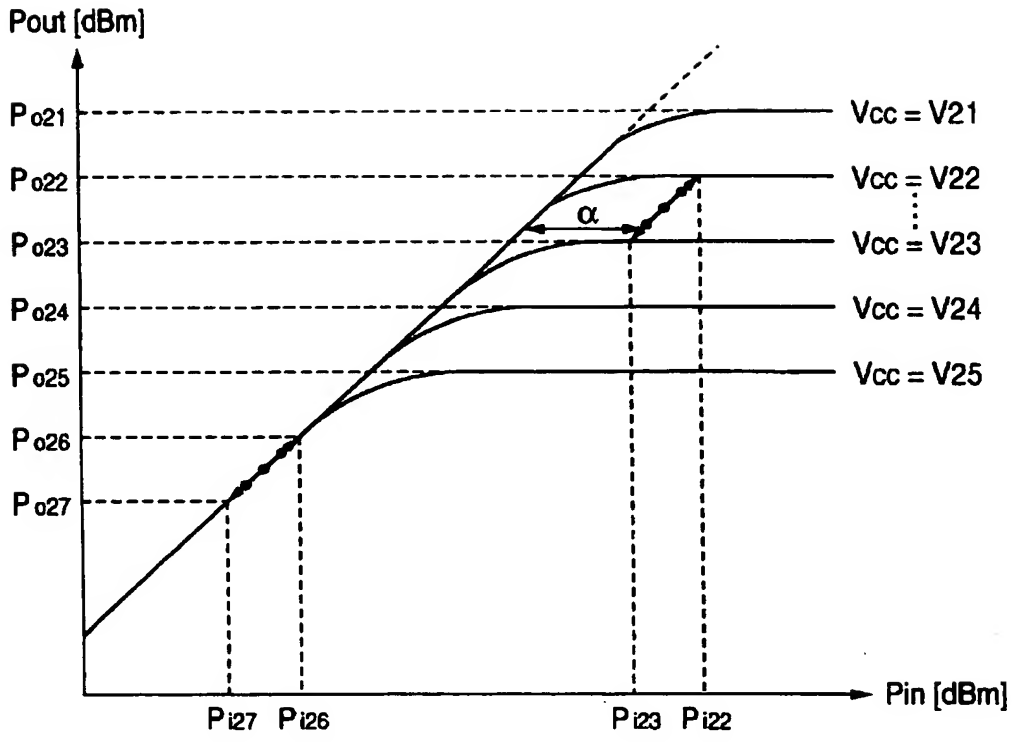

Pout [dBm]
Po21
Po22
Po23
Po24
Po25
Po26
Po27
Vcc = V21
Vcc = V22
Vcc = V23
Vcc = V24
Vcc = V25
α
Pi27
Pi26
Pi23
Pi22
Pin [dBm]

FIG. 6

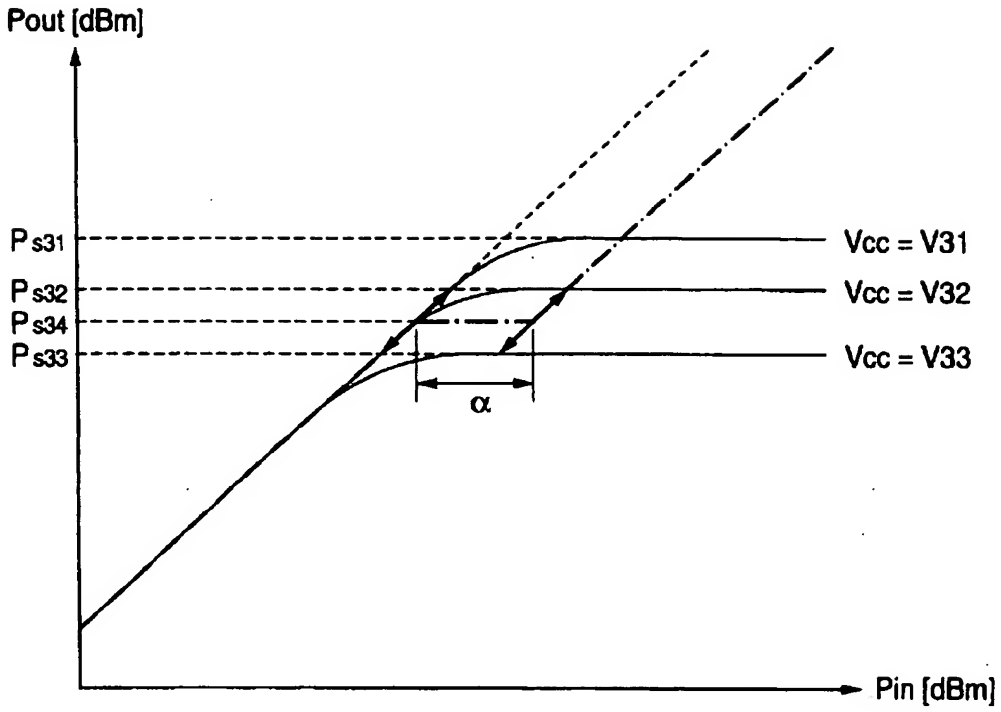


FIG. 7

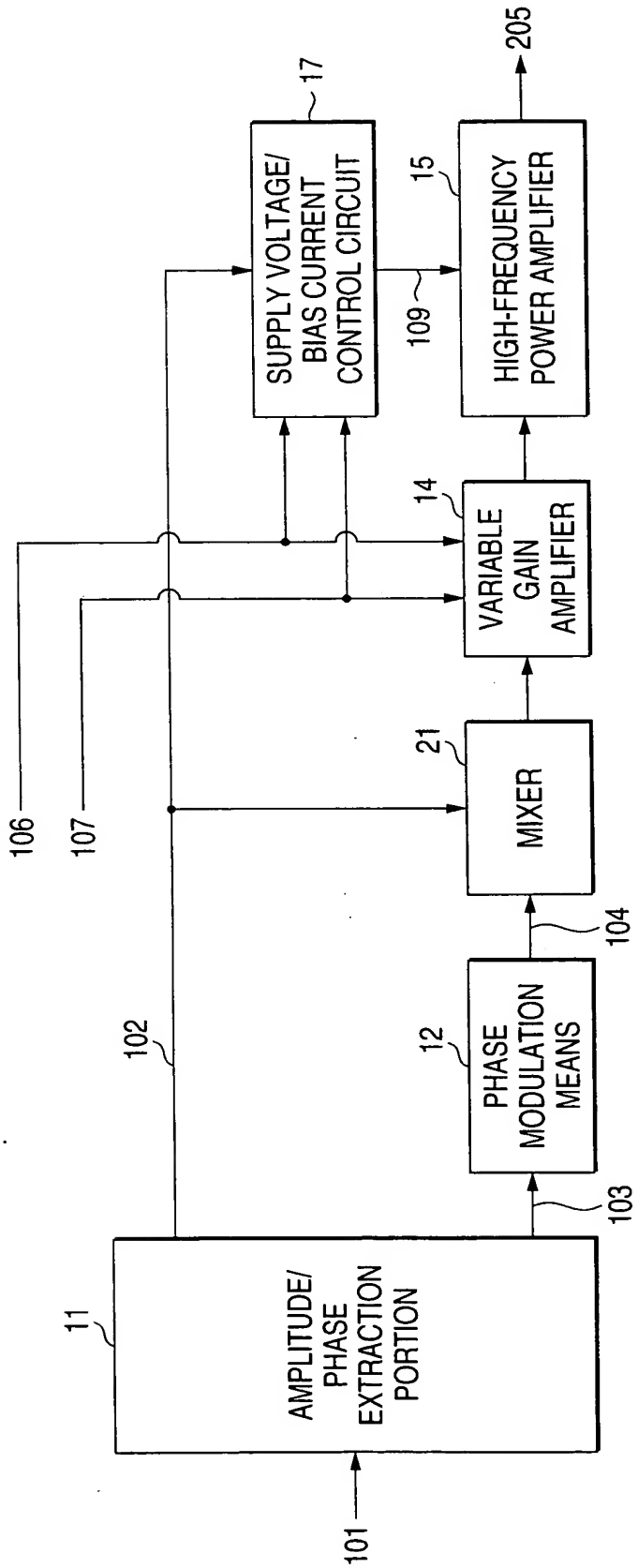

101
11
AMPLITUDE/
PHASE
EXTRACTION
PORTION
103
12
PHASE
MODULATION
MEANS
102
104
21
MIXER
106
107
14
VARIABLE
GAIN
AMPLIFIER
17
SUPPLY VOLTAGE/
BIAS CURRENT
CONTROL CIRCUIT
109
15
HIGH-FREQUENCY
POWER AMPLIFIER
205

FIG. 8

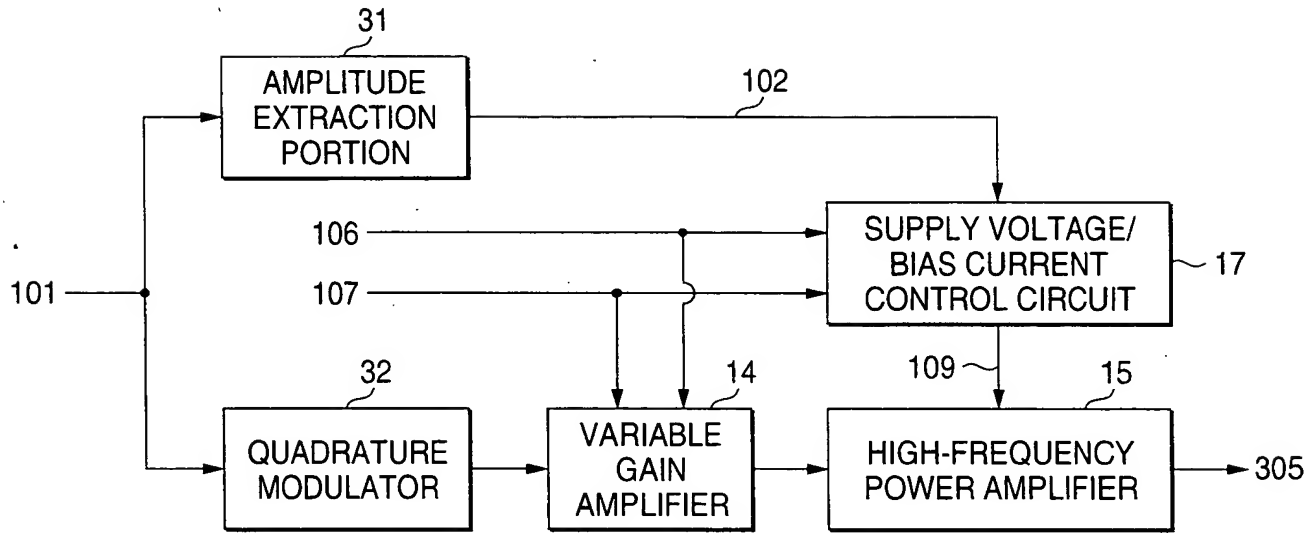
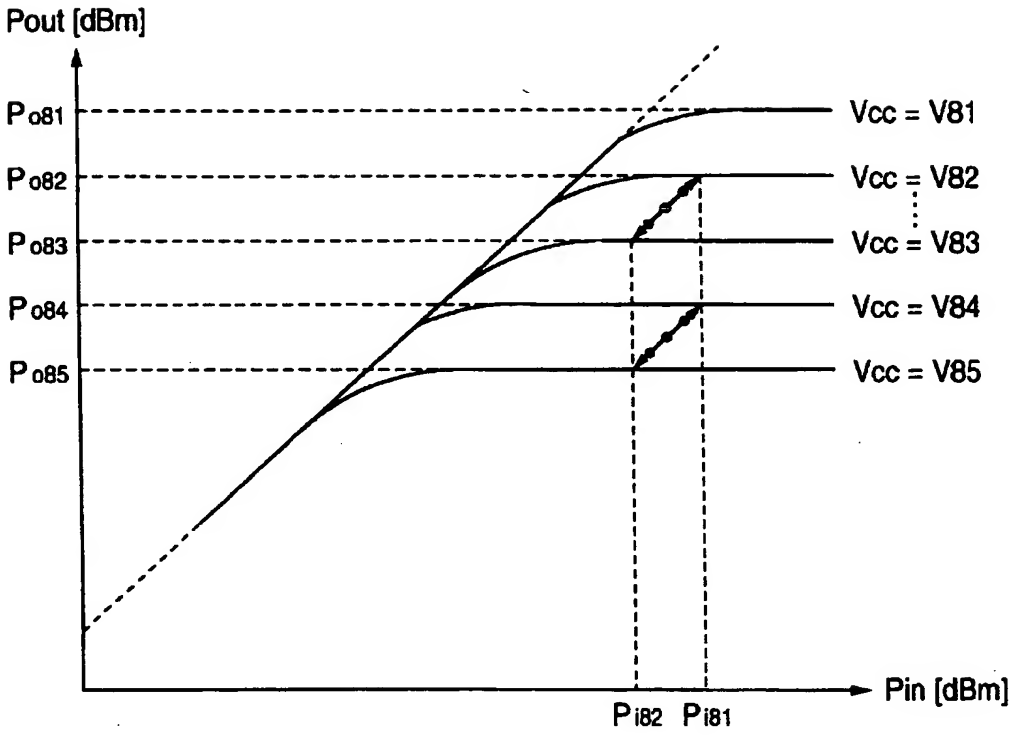

31
AMPLITUDE EXTRACTION PORTION
102
106
107
101
SUPPLY VOLTAGE/ BIAS CURRENT CONTROL CIRCUIT
17
32
14
109
15
QUADRATURE MODULATOR
VARIABLE GAIN AMPLIFIER
HIGH-FREQUENCY POWER AMPLIFIER
305

FIG. 9


Pout [dBm]
Po81
Po82
Po83
Po84
Po85
Vcc = V81
Vcc = V82
Vcc = V83
Vcc = V84
Vcc = V85
Pin [dBm]
Pi82
Pi81